CLAIMS:

1. A scanning device for scanning a disc-shaped information carrier, which scanning device is provided with a table which can be rotated about an axis of rotation and on which an information carrier can be placed, and with a scanning unit, and a linear motor by means of which the scanning unit can be displaced with respect to the table predominantly in a radial direction, which linear motor is provided with a first and a second part which are displaceably guided with respect to each other by means of a straight guide, the first part being provided with pairs of magnets having opposite directions of magnetization directed substantially perpendicularly to the guide, and the second part being provided with an electric coil system comprising winding portions extending substantially perpendicularly to the directions of magnetization and perpendicularly to the guide, and the linear motor being provided with a control unit for controlling an electric current in the coil system, characterized in that, in operation, the control unit admits an electric current to at least one of said winding portions and controls said electric current, if said winding portion is situated in a magnetic transition field between two adjacent magnets having opposite directions of magnetization.

2. A scanning device as claimed in claim 1, characterized in that the guide comprises a single round shaft and at least one bushing provided around said shaft.

3. A scanning device as claimed in claim 1, characterized in that the linear motor comprises a sensor for measuring a mutual position of the two parts of the linear motor in a direction parallel to the directions of magnetization, and in that the control unit comprises a control loop for adjusting a desired mutual position of the two parts by means of a signal supplied by the sensor, which signal corresponds to a measured mutual position of the two parts.

4. A scanning device as claimed in claim 2 and 3, characterized in that the control unit uses the measured mutual position of the two parts of the linear motor to determine a mutual inclination of the two parts about said shaft, while the control loop uses

the measured inclination to adjust a desired mutual inclination of the two parts about said shaft.

5. A scanning device as claimed in claim 1, characterized in that the coil system comprises at least three electric coils, which each include two parts having winding portions extending substantially perpendicularly to the directions of magnetization and perpendicularly to the guide, a pitch which substantially corresponds to a pitch between two adjacent magnets having opposite directions of magnetization being present between the two parts of each coil, and a pitch which is substantially equal to 2/3 or 4/3 times the pitch between said two magnets being present between each pair of coils of said three coils.

6. A scanning device as claimed in claims 3 and 5, characterized in that the sensor comprises three Hall sensors, which each measure the strength of a magnetic field originating from the magnets and present near, respectively, one of the three coils.

7. A scanning device as claimed in claim 1, characterized in that the first part of the linear motor is provided with two rows of permanent magnets extending substantially parallel to the guide, the pitch between said permanent magnets being substantially constant, each pair of adjoining magnets of each row having opposite directions of magnetization, the two rows being arranged, viewed in a direction parallel to the directions of magnetization, at some distance from each other, and each pair of oppositely arranged magnets of the two rows having equal directions of magnetization, and said winding portions of the coil system, viewed in a direction parallel to the magnetization direction, being situated between the two rows so as to be closer to one row than to the other row.